

REMARKS

Reconsideration of the pending application is respectfully requested on the basis of the following particulars.

1. In the claims

As shown in the foregoing LIST OF CURRENT CLAIMS, the claims have been amended to more clearly point out the subject matter for which protection is sought.

Claims 1-7 are amended to remove reference numerals. It is respectfully submitted that no new matter is added, since the use of reference numerals does not affect the scope of the claims (MPEP § 608.01(m)).

Claims 1 and 3 are amended to correct a minor informality and to replace the word "whereby" with the phrase "so that" to clarify that the recitations following the word "wherein" are required features of the claims. It is respectfully submitted that no new matter is added, as the changes merely correct a minor informality and clarifies the original intention that the recited features are required features of the claims.

Claims 1 and 3 are further amended to remove the recitation of "at least one of a peripheral wall of the valve chamber and" in order to remove this alternate configuration from the claims. It is respectfully submitted that no new matter is added by way of the amendment.

Claims 2 and 4 are amended to be consistent with amended claims 1 and 3. It is respectfully submitted that no new matter is added by way of the amendment.

Entry of the LIST OF CURRENT CLAIMS is respectfully requested in the next Office communication.

2. Rejection of claims 1-4 under 35 U.S.C. § 102(b) as being anticipated by U.S. patent no. 4,287,912 (*Hewett*)

Reconsideration of this rejection is respectfully requested, in view of the amendments to claims 1 and 3, on the basis that the *Hewett* patent fails to disclose each and every recited element of amended claims 1 and 3. The remaining claims 2 and 4 depend from either claim 1 or 3, and are therefore patentable as containing all of the recited elements of claims 1 or 3, as well as for their respective recited features.

By way of review, the embodiments of amended claims 1 and 3 require a flow control valve, the recited structure of which allows flow in two directions. In particular, with respect to claim 1, the flow control valve includes a cylindrical casing having therein a meter-out inlet, a valve chamber, a rod chamber for housing an adjusting rod to be axially movable, and a meter-out outlet, all communicatively connected in the recited order.

With respect to claim 3, the cylindrical casing has therein a meter-in inlet, a rod chamber for housing an adjusting rod to be axially movable, a throttle valve seat arranged substantially concentrically with the rod chamber, and a meter-in outlet, all communicatively connected in the recited order.

Claim 1 further requires the throttle valve seat to be provided on a leading end portion of the adjusting rod.

In each of claims 1 and 3, a check member is inserted in a valve chamber and is urged towards the throttle valve seat by an elastic member.

In contrast to the embodiments of claims 1 and 3, the *Hewett* patent discloses a monoflow ball valve, which only allows flow in a first direction and seals against backflow (abstract; col. 1, lines 36-42; col. 2, lines 20-24).

Further, with respect to claim 1, the *Hewett* patent fails to disclose at least a throttle valve seat provided on a leading end of an adjusting rod, the check member urged towards the throttle valve seat by an elastic member, and an adjustable throttle

gap formed between the check member and the throttle valve seat, all as required by amended claim 1.

With respect to claim 3, the *Hewett* patent fails to disclose at least a throttle valve seat, the check member urged towards the throttle valve seat by an elastic member, and an adjustable throttle gap formed between the check member and the throttle valve seat, all as required by amended claim 3.

The structure of the monoflow ball valve 10 of the *Hewett* patent includes a valve body 11 having an internal flow-through passage 12 concentric with and extending along the longitudinal axis 13 of the body. The valve body 11 is arranged for the flow of fluids from an inlet end generally designated by numeral 14 to an outlet end generally designated by numeral 15. The valve body 11 contains a ball 16 which cooperates with the inside of the valve body to permit fluid flow through the inlet end via the passage and blocks flow in the reverse direction (col. 2, lines 12-26).

The valve body 11 can be constructed in two portions 22, 21 that are telescopically connected (col. 2, lines 27-35). Specifically, the body portion 21 is provided with an internal tapered passage 12a having threads 24 thereon for mating with external threads 25 on the body portion 22 (col. 2, lines 53-58). The taper causes the pipe section to become compressed as the body portions are threaded together (col. 2, lines 63-64). The portion 22 includes a chamfered shoulder 23 that engages and limits movement of the ball 16 (which is biased toward the shoulder 23 via spring 17) until a sufficient back pressure develops to force the ball 16 into the passage 12b (col. 2, lines 35-40). It appears that there will be some limited movement of the ball 16 when the valve body portions 22, 21 are screwed together or apart, due to the engagement between the ball 16 and the chamfered shoulder 23.

There is no disclosure in the *Hewett* patent, however, of a throttle valve seat or an adjustable throttle gap formed between the check member and the throttle valve seat, as required by amended claims 1 and 3. In particular, there is no disclosure of throttling the fluid in the monoflow ball valve 10, so there can be no throttle valve seat in the monoflow ball valve 10 of the *Hewett* patent.

With respect to amended claim 1, there is further no disclosure in the *Hewett* patent of a throttle valve seat provided on a leading end portion of an adjusting rod.

Further still, with respect to claims 1 and 3, since there is no throttle valve seat disclosed in the *Hewett* patent, there is no disclosure that the ball 16 is urged toward a throttle valve seat.

Even further still, because there is no throttle valve seat disclosed in the *Hewett* patent, there is no disclosure of a throttle gap formed between the ball 16 and a throttle valve seat, as is required by amended claims 1 and 3.

Furthermore, even if throttling the fluid were disclosed in the *Hewett* patent, the only possible structure that could act as a throttle valve seat is the outlet end section 39 of body portion 21, which surface surrounds the spring 17 (Figs. 3 and 4). However, even if this structure is considered to be a throttle valve seat, the ball 16 is urged *away* from this surface by the spring 17, which is in direct contrast to amended claims 1 and 3, which require the check member to be urged *toward* the throttle valve seat.

Accordingly, for the reasons discussed above, the *Hewett* patent fails to disclose at least a throttle valve seat provided on a leading end of an adjusting rod, the check member urged towards the throttle valve seat by an elastic member, and an adjustable throttle gap formed between the check member and the throttle valve seat, all as required by amended claim 1, and at least a throttle valve seat, the check member urged towards the throttle valve seat by an elastic member, and an adjustable throttle gap formed between the check member and the throttle valve seat, all as required by amended claim 3. Therefore, withdrawal of this rejection is respectfully requested.

As mentioned above, applicants submit that independent claims 1 and 3 are patentable and therefore, claims 2 and 4, which respectively depend from claims 1 and 3, are also considered to be patentable as containing all of the elements of claim 1 or 3, as well as for their respective recited features.

3. Rejection of claims 1-4 under 35 U.S.C. § 102(b) as being anticipated by U.S. patent no. 4,495,965 (*Ise*)

Reconsideration of this rejection is respectfully requested, in view of the amendments to claims 1 and 3, on the basis that the *Ise* patent fails to disclose each and every recited element of amended claims 1 and 3. The remaining claims 2 and 4 depend from either claim 1 or 3, and are therefore patentable as containing all of the recited elements of claims 1 or 3, as well as for their respective recited features.

By way of review, the embodiments of amended claims 1 and 3 require components of a flow control valve including a throttle valve seat and a check member urged toward the throttle valve seat by an elastic member. The throttle valve seat and the check member are relatively movable by advancing and retreating an adjusting rod in the axial direction, wherein adjustment of a throttle gap formed between the check member and the throttle valve seat is enabled.

Contrary to the embodiments of amended claims 1 and 3, the *Ise* patent fails to disclose at least an adjustable throttle gap formed between the check member and the throttle valve seat.

With reference to Fig. 2 of the *Ise* patent, a flow regulating valve includes a valve body 5 of cylindrical form having a valve chamber 5a, and ports 5', 5'' on either end thereof (Fig. 2; col. 2, lines 39-41). A sleeve 12 is inserted into the left end of the valve chamber and includes a conical valve seat 12a (Fig. 2; col. 2, lines 52-54). A ring check valve 13 is positioned around the sleeve 12 and between the inner surface of the valve chamber 5a to open and close lateral holes 12c (Fig. 2; col. 2, lines 55-60). A cylindrical valve member 15, which can be axially adjusted, is fitted within the valve chamber 5a having a valve head 15a formed in conformance with the valve seat 12a (Fig. 2; col. 2, lines 61-65). By axially adjusting the cylindrical valve member 15, the valve clearance between the valve seat 12a and the valve head 15a can be adjusted (col. 3, lines 8-10).

However, if the valve seat 12a is considered to be a throttle valve seat, then the flow regulating valve of the *Ise* patent does not disclose an adjustable throttle gap formed between the check member and the throttle valve seat, since the check valve 13 and the valve seat 12a do not cooperate to form a throttle gap therebetween, and further, axial adjustment of the cylindrical valve member 15 does not effect the relative positional relationship of the check valve 13 and the valve seat 12a.

Accordingly, the embodiment of Fig. 2 of the *Ise* patent does not disclose an adjustable throttle gap formed between the check member and the throttle valve seat, as is required by amended claims 1 and 3.

Similarly, Figs. 3 and 4 of the *Ise* patent disclose flow control valves utilizing spiral grooves 18, the length of which a fluid passing therethrough being adjusted by axial adjustment of the cylindrical valve member 15 in order to adjust the flow rate of the fluid (Figs. 3 and 4; col.3, lines 30-35, 60-65; col. 4, lines 24-36). In each of these embodiments, there is no "throttle valve seat" disclosed.

Further, even if the interface between the sleeves 12 having the spiral grooves 18 and the cylindrical valve members 15 is considered to be a throttle valve seat, the *Ise* patent still fails to disclose an adjustable throttle gap formed between the check member and the throttle valve seat, as is required by amended claims 1 and 3.

On the contrary, the check valves 13 are positioned within the sleeves 12, and the interface between the sleeves 12 having the spiral grooves 18 and the cylindrical valve members 15 are positioned on the exterior of the sleeves 12. Thus, there is no gap formed between the check valves 13 and the interface between the sleeves 12 having the spiral grooves 18 and the cylindrical valve members 15.

Accordingly, the *Ise* patent fails to disclose an adjustable throttle gap formed between the check member and the throttle valve seat, as is required by amended claims 1 and 3, and withdrawal of this rejection is respectfully requested.

As mentioned above, applicants submit that independent claims 1 and 3 are patentable and therefore, claims 2 and 4, which respectively depend from claims 1

and 3, are also considered to be patentable as containing all of the elements of claim 1 or 3, as well as for their respective recited features.

4. Rejection of claims 6 and 7 under 35 U.S.C. § 102(b) as being anticipated by Japanese publication JP 39-18634 or JP 11347869

Reconsideration of this rejection is respectfully requested on the basis that the '634 publication and the '869 publication fail to disclose each and every recited element of claim 6. The remaining claim 7 depends from claim 6, and is therefore patentable as containing all of the recited elements of claim 6, as well as for its respective recited features.

By way of review, the embodiment of pending claim 6 requires *inter alia* a cylindrical casing attached to a mounting hole and a leading end portion of the cylindrical casing is brought into contact with or made to approach a bottom wall of the mounting hole to partition the actuation port and the pressure port.

Turning first to the '634 publication, there is no disclosure of a cylindrical casing attached to a mounting hole and a leading end portion of the cylindrical casing is brought into contact with or made to approach a bottom wall of the mounting hole to partition the actuation port and the pressure port, as is required by pending claim 6.

As shown in Figs. 1-3 of the '634 publication, an unlabeled sealing member is mounted to an outer periphery of a main body 4, 4', which apparently corresponds to the cylindrical casing recited in claim 6. As seen in Figs. 1-3, the leading end portion of the main body 4, 4' does not contact or approach the bottom wall of the mounting hole in order to partition the actuation port and the pressure port, but instead, the partitioning is achieved via the unlabelled sealing element.

Accordingly, the '634 publication fails to disclose a cylindrical casing attached to a mounting hole and a leading end portion of the cylindrical casing is brought into contact with or made to approach a bottom wall of the mounting hole to partition the actuation port and the pressure port, as is required by pending claim 6, and withdrawal of this rejection is respectfully requested.

Similarly, there is no disclosure in the '869 publication of a cylindrical casing attached to a mounting hole and a leading end portion of the cylindrical casing is brought into contact with or made to approach a bottom wall of the mounting hole to partition the actuation port and the pressure port, as is required by pending claim 6.

In particular, there is no element of the '869 publication that appears to correspond to the cylindrical casing recited in pending claim 6, and thus, there is no leading end portion of the cylindrical casing to be brought into contact with or made to approach a bottom wall of the mounting hole to partition the actuation port and the pressure port, as is required by pending claim 6.

Accordingly, the '869 publication fails to disclose a cylindrical casing attached to a mounting hole and a leading end portion of the cylindrical casing is brought into contact with or made to approach a bottom wall of the mounting hole to partition the actuation port and the pressure port, as is required by pending claim 6, and withdrawal of this rejection is respectfully requested.

As mentioned above, applicants submit that independent claim 6 is patentable and therefore, claim 7, which depends from claim 6, is also considered to be patentable as containing all of the elements of claim 6, as well as for its respective recited features.

5. Rejection of claim 5 under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent no. 4,495,965 (*Ise*) in view of Japanese publication JP 39-18634 or JP 11347869

Reconsideration of this rejection is respectfully requested on the basis that the rejection fails to establish a *prima facie* case of obviousness with respect to claims 1 and 3, from which claim 5 depends.

The shortcomings of the *Ise* patent with respect to amended claims 1 and 3 are described above in detail.

Neither of the '634 publication and the '869 publication disclose the structure of an adjustable throttle gap formed between the check member and the throttle valve seat, as is required by amended claims 1 and 3.

Accordingly, since none of the *Ise* patent and the '634 publication and the '869 publication disclose an adjustable throttle gap formed between the check member and the throttle valve seat, as is required by amended claims 1 and 3, the proposed combination of the *Ise* patent and the '634 publication or the '869 publication fails to disclose this feature.

Therefore, since the proposed combination of the *Ise* patent and the '634 publication or the '869 publication fails to disclose an adjustable throttle gap formed between the check member and the throttle valve seat, as is required by amended claims 1 and 3, a *prima facie* case of obviousness cannot be established with respect to claims 1 and 3, from which claim 5 depends. Accordingly, withdrawal of this rejection is respectfully requested.

6. Conclusion

As a result of the amendment to the claims, and further in view of the foregoing remarks, it is respectfully submitted that the application is in condition for allowance. Accordingly, it is respectfully requested that every pending claim in the present application be allowed and the application be passed to issue.

If any issues remain that may be resolved by a telephone or facsimile communication with the applicants' attorney, the examiner is invited to contact the undersigned at the numbers shown below.

BACON & THOMAS, PLLC
625 Slaters Lane, Fourth Floor
Alexandria, Virginia 22314-1176
Phone: (703) 683-0500
Facsimile: (703) 683-1080

Date: December 9, 2008

Respectfully submitted,

/Patrick M. Buechner, Reg. #57,504/

PATRICK M. BUECHNER
Attorney for Applicants
Registration No. 57,504